ABSTRACT

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All organisms are able to metabolize xenobiotics, including drugs. This ability to detoxify is very important and provides them some protection. Animal species differ in the presence of certain biotransformation enzymes as well as in the enzyme activity. Therefore, the comparison of results in different animal species is not simple. If we want to achieve successful treatment, it is necessary to know interspecies differences, especially when dealing with the drug resistance. This thesis deals with a liver fluke (*Fasciola hepatica*). This parasite causes significant loss in breeding and production of sheep and cattle. Treatment of fasciolosis is problematic because the resistance to the most commonly used drug - triclabendazole has occurred. It is therefore necessary to find out more about the fluke's ability to biotransform the anthelmintics. The aim of the thesis was to measure the activity of certain biotransformation enzymes of *F. hepatica* and determine metabolism of selected anthelmintics. The activities of oxidation , reduction and conjugation enzymes were find out, and the assumption that *F. hepatica* possesses the ability to metabolize anthelmintics was confirmed. Anthelmintics (triclabendazole, albendazole, mebendazole) were used for the *ex vivo* and *in vitro* incubation. The HPLC-MS system was used to measure the metabolites. Triclabendazole and albendazole were oxidized, mebendazole was reduced. Since all the drugs were found both in the culture medium and in the flukes, their penetration capability through the tegument is evident.